

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A synchronization circuit₁ comprising:

a reference pulse;

a first variable delay circuit for generating a first pulse to be synchronized with said reference pulse, a second pulse which is leading in ~~the~~ phase for a certain period relative to said first pulse, and a third pulse which is delayed in ~~the~~ phase for a certain period from said first pulse;

a first phase comparing circuit for comparing said reference pulse with said first pulse;

a second phase comparing circuit for comparing said reference pulse and said second pulse and said third pulse; and

a control voltage generating circuit for generating a control voltage ~~effor~~ controlling said first variable delay circuit ~~by receiving in response to~~ a comparison output of said first phase comparing circuit and a comparison output of said second phase comparing circuit;

wherein said control voltage generating circuit generates ~~the said~~ control voltage by giving priority to the comparison output of said second phase comparing circuit with respect to the comparison output of said first phase comparing circuit, and also generates, after said reference pulse and said second pulse or third pulse are matched in ~~the phases with~~ phase at said second phase comparing circuit, said control voltage by the comparison output of said first phase comparing circuit.

2. (previously presented) The synchronization circuit according to claim 1,

wherein said variable delay circuit comprises a plurality of stages of a unit variable delay circuit,

wherein said second pulse is an input pulse of said unit delay circuit to form said first pulse, and

wherein said third pulse is an output pulse of said unit delay circuit to receive said first pulse.

3. (currently amended) The synchronization circuit according to claim 2,

wherein said synchronization circuit is mounted over a semiconductor integrated circuit device,

wherein said synchronization circuit comprises a second variable delay circuit including a plurality of unit delay circuits for forming said first pulse of said first variable delay circuit and being controlled in the delay time thereof ~~with~~by said control voltage,

wherein said reference pulse is inputted from the external terminal of said semiconductor integrated circuit device and then inputted to said first and second variable delay circuits, and

wherein ~~the~~a pulse synchronized with said reference pulse is outputted from said second variable delay circuit.

4. (currently amended) The synchronization circuit according to claim 3,

wherein said reference pulse is inputted to said first and second variable delay circuits via an input buffer,

wherein an output pulse generated by said second variable delay circuit is outputted from the external terminal via an output buffer, and

wherein a replica circuit having a delay time equivalent to that of said input buffer and said output buffer is provided between said input buffer and said first variable delay circuit.

5. (currently amended) The synchronization circuit according to claim 4, further comprising;

a frequency dividing circuit for dividing the frequency of said reference pulse;

a frequency dividing/distributing circuit for dividing the frequency of said reference pulse in ~~the dividing~~ a frequency dividing ratio which is equivalent to that of said frequency dividing circuit to ~~distributing~~ distribute them to multiphase clocks corresponding to ~~the said~~ frequency dividing ratio;

a second variable delay circuit comprising a plurality of stages thereof for respectively delaying the multiphase clocks of said frequency dividing/distributing circuit; and

a waveform combining circuit for generating ~~the a~~ pulse corresponding to said reference pulse ~~by receiving in response to receipt of~~ a delayed output of said variable delay circuit.

6. (currently amended) A synchronization circuit, comprising;

a reference pulse signal;

a frequency dividing circuit for dividing the frequency of said reference pulse signal;

a first variable delay circuit for generating a first pulse signal to be synchronized with the frequency-divided pulse signal of said frequency dividing circuit;

a first phase comparing circuit for comparing said frequency-divided pulse signal with said first pulse signal;

a frequency dividing/distributing circuit for dividing the frequency of said reference pulse signal and for generating multiphase clocks corresponding to the frequency dividing ratio;

a second variable delay circuit which is configured ~~in the~~ to have an identical structure to that of said first variable delay circuit and comprises a plurality of stages for respectively delaying the multiphase clocks formed in said frequency dividing/distributing circuit;

a waveform combining circuit for generating ~~the a~~ pulse signal corresponding to said reference pulse ~~by receiving the signal in response to receipt of a~~ delayed output from a plurality of stages of said second variable delay circuit; and

a control voltage generating circuit for generating ~~the~~ control voltages for control of said variable delay circuit and said second variable delay circuit ~~by receiving in response to receipt of a~~ comparison output of said first phase comparing circuit.

7. (previously presented) The synchronization circuit according to claim 6,

wherein said synchronization circuit is mounted over a semiconductor integrated circuit device,

wherein said reference pulse is inputted from the external terminal of said semiconductor integrated circuit device and is then inputted to said first and said second variable delay circuits.

8. (currently amended) A synchronization method comprising the steps of:

forming a first pulse to be synchronized with a reference pulse by a first variable delay circuit, a second pulse which is leading in ~~the~~ phase for a certain period relative to said first pulse and a third pulse which is delayed in ~~the~~ phase for a certain period from said first pulse;

comparing said reference pulse with said first pulse by a first phase comparing circuit;

comparing said reference pulse with said second pulse and said third pulse by a second phase comparing circuit; and

forming a control voltage with a control voltage generating circuit by giving priority to a comparison output of said second phase comparing circuit with respect to a comparison output of said first phase comparing circuit, matching the phase of said reference pulse with the phase of said second pulse or said third pulse, and then matching, after said matching of phases, the phase of said reference pulse with the phase of said first pulse by forming said control voltage from the comparison output of said first phase comparing circuit.

9. (currently amended) A synchronization method comprising the steps of:

dividing the frequency of a reference pulse signal by use of a frequency dividing circuit;

forming a first pulse signal to be synchronized with the frequency-divided pulse signal of said frequency dividing circuit by use of a first variable delay circuit;

comparing said frequency-divided pulse signal with said first pulse signal by use of a first phase comparing circuit;

dividing the frequency of said reference pulse and forming multiphase clocks corresponding to the frequency dividing ratio by use of a frequency dividing/distributing circuit;

delaying₁ respectively₁ multiphase clocks generated by said frequency dividing/distributing circuit with a plurality of stages of a second variable delay circuit configured ~~in~~ to have the same structure as that of said first variable delay circuit₁;

generating, by use of a waveform combining circuit, ~~the~~ a pulse signal corresponding to said reference pulse signal from ~~the~~ a delayed output of said second variable delay circuit ~~of a plurality of stages~~; and

forming, by use of a control voltage generating circuit, a control voltage for control of said first and second variable delay circuits corresponding to a comparison output of said first phase comparing circuit.